ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT
INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 15 SUBPART C REQUIREMENT
FOR

58KHZ ELECTRONIC ARTICLE SURVEILLANCE SYSTEM

MODEL NAME: MONO-GUARD AND MULTI-GUARD

FCC ID: P9I-WGMG58

Prepared For

WG SECURITY PRODUCTS, INC
161 SAN LAZARO AVE
SUNNYVALE, CA 94086
USA

Prepared By

Compliance Certification Services
561F Monterey Road
Morgan Hill CA 95037
USA

Report No :01U1051-1
Revision No:A
Date:1/22/02

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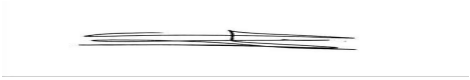
Verification Of Compliance

COMPANY NAME	:	WG SECURITY PRODUCTS, INC. 161 SAN LAZARO AVENUE SUNNYVALE, CA 94086, USA
CONTACT PERSON	:	GRAHAM HANDYSIDE / VICE PRESIDENT
TELPHONE NO	:	(408) 530-8070
MODEM NAME	:	MONO GUARD AND MULTI-GUARD
DATE TESTED	:	DECEMBER 12, 2001 AND APRIL 19, 2002

LIMIT APPLY TO : FCC PART 15 SECTION 15.209	
TECHNICAL LIMITS	**TEST RESULT**
Restricted Band of Operation	Passed
LIMIT APPLY TO : FCC PART 15 SECTION 15.207	
AC Line Conducted Emission	Passed

The above equipment was tested by Compliance Engineering Services Inc. for compliance with the requirement set forth in the requirements of CFR 47 PART 15 SUBPART C. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

Tested By:



FRANK IBRAHIM
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

Approved & Released For CCS By:

MIKE HECKROTTE
CHIEF ENGINEER
COMPLIANCE CERTIFICATION SERVICES

SECTION 1: LABORATORY INFORMATION

1.1 General Condition:

This report contains an assessment of an apparatus against Electromagnetic Interference Technical Requirements based upon tests carried out on the samples submitted.

With regard to this assessment, the following points should be noted:

a) The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties. ent reports conditions under which testing was conducted and results of tests performed. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section.

b) The apparatus was set up and exercised using the configurations, modes of operation and arrangements defined in this report only.

c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report .

d) All testing was performed under the following environmental conditions:

·	Temperature	15ºC to 35ºC (54°F to 95°F)
·	Atmospheric Pressure	860mbar to 1060mbar (25.4" to 31.3")
·	Humidity	10% to 75*%

1.2 Measurement Facilities

Compliance Certification Services
561F Monterey Road
Morgan Hill CA 95037
USA
Tel: (408)463-0885, Fax: (408)463-0888

1.3 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	NVLAP*	FCC Part 15, CISPR 22, AS/NZS 3548,IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11, CNS 13438	NVLAP 200065-0
USA	FCC	3/10 meter Open Area Test Sites to perform FCC Part 15/18 measurements	FC 1300
Japan	VCCI	CISPR 22 Two OATS and one conducted Site	VCCI R-1014, R-619, C-640
Norway	NEMKO	EN50081-1, EN50081-2, EN50082-1, EN50082-2, IEC61000-6-1, IEC61000-6-2, EN50083-2, EN50091-2, EN50130-4, EN55011, EN55013, EN55014-1, EN55104, EN55015, EN61547, EN55022, EN55024, EN61000-3-2, EN61000-3-3, EN60945, EN61326-1	N ELA 117
Norway	NEMKO	EN60601-1-2 and IEC 60601-1-2, the Collateral Standards for Electro-Medical Products. MDD, 93/42/EEC, AIMD 90/385/EEC	N ELA-171
Taiwan	BSMI	CNS 13438	SL2-IN-E-1012
Canada	Industry Canada	RSS210 Low Power Transmitter and Receiver	Canada IC2324 A,B,C, and F

*No part of this report may be used to claim or imply product endorsement by NVLAP or any agency of the US Government

1.4 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Radiated Emission	
30MHz – 200 MHz	+/- 3.3dB
200MHz – 1000MHz	+4.5/-2.9dB
1000MHz – 2000MHz	+4.6/-2.2dB
Power Line Conducted Emission	
150kHz – 30MHz	+/-2.9

Any results falling within the above values are deemed to be marginal.

1.5 Deviation from measurement specification

Not Applicable

1.6 Measurement Instrument Calibration

The measuring equipment which was utilized in performing the tests documented herein has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment which is traceable to recognized national standards.

SECTION 2: PRODUCT INFORMATION

2.1 Product Description:

The Mono-Guard and Multi Guard are software driven EAS system that works in combination with any 58kHz tag. The system receiver listens for the unique signal that any 58kHz tag produces, and the sequence produced is then verified and multiplied in a fraction of a second. When the presence of a 58kHz tag is identified, this will alarm the system. Eliminating false alarms entirely is the intent of our design.

For the Mono-Guard, the transmitter and receiver are integrated in the same pedestal. For the Multi-Guard, the transmitter and recevier contained in separate pedestals. The circuitry and printed wiring boards are idential only the layout of assemblies changes between Mono-Guard and Multi-Guard.

The Multi-Guard system can operate at a higher level of sensitivity, resulting in an excellent detection rate of up to 2.8 meters (9 feet) between two pedestals.

2.2 Power Requirements

AC	**120-230V, 50-60Hz**
DC	**N/A**
Battery Power	**N/A**
AC-DC Adaptor	**N/A**

2.3 Local Osc. Or Crystal:

Board Name	**Local Osc. / Crystal (MHz)**
Main	**11.6**
Communication	**3.712**

2.4 Serial Number

Not Applicable

SECTION 3: TEST SUMMARY

3.1 Applicable Electromagnetic Interference Requirements:

Radiated Emission Technical Requirements 15.209		
Frequency (MHz)	**Field strength (microvolts/meter)**	**Measurement distance (meters)**
0.009-0.490	2400/F(KHz)	300
0.490-1.705	24000/F(KHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Conducted Emission Technical Requirements 15.207	
Frequency Range	**FCC limits Quasi-Peak/dBuV**
450kHz-0.5 MHz	48

3.2 Sample received date and Test Period:

Mono-Guard

Sample received date	**11/9/01**
Test Period	**From 11/9/01 To 12/18/01**

Multi-Guard

Sample received date	**4/8/02**
Test Period	**From 4/8/02 To 4/19/02**

3.3 Engineering Justification:

DURING TEST SOME MODIFICATIONS WERE MADE TO ACHIEVE THE LIMIT.

1. Two ferrite cores were added to the transmitter board to the antenna.
   The ferrite is model number 32866WG from WG Security.

2. A third ferrite core was added to the controller card to the main board.
   The ferrite model number is 0444164181 from Fair-Rite.

3a. For the Mono-Guard, a shielding plate was added to the AC to DC power board.

3b. For the Multi-Guard, a shielding plate was added to the AC to DC power board in transmitter unit.

SECTION 4 ELECTROMAGNETIC INTERFERENCE TEST

Test Configuration:

Software Used During The Tests			
File Name	☐ EMCTEST	☐ Pinging	☐ Read & Write
	☐ Terminal	☐ Music	☐ Joy-Stick
	☒ Other: None		
Program Sequence	N/A		

Mode of Operational Investigated:

Worse Case Emission Levels			
	Mode of Operation	Radiated Emission	Conducted Emission
1	TX	☒	☒
2		☐	☐
3		☐	☐

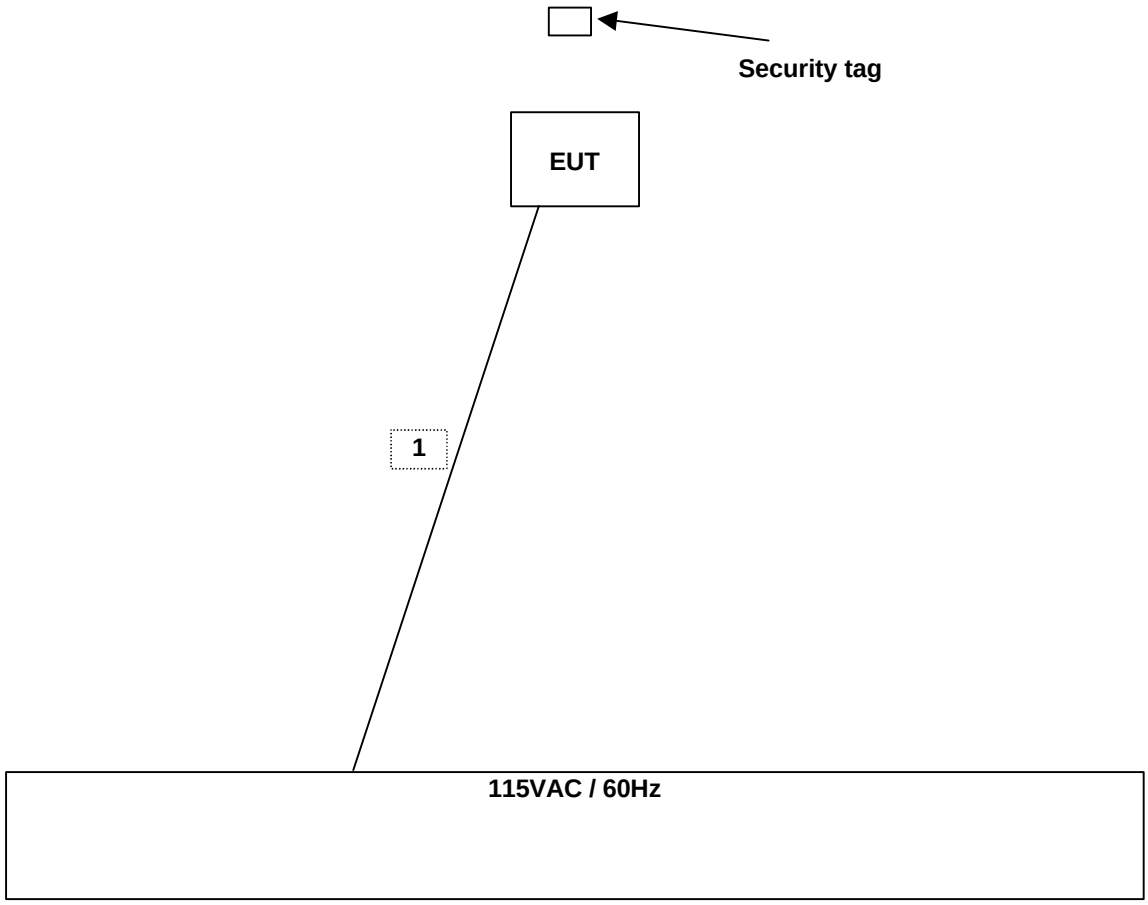
Frequency Range Investigated:

	From	To
Radiated Emissions	.010MHz	1GHz
Conducted Emissions	.150MHz	30MHz

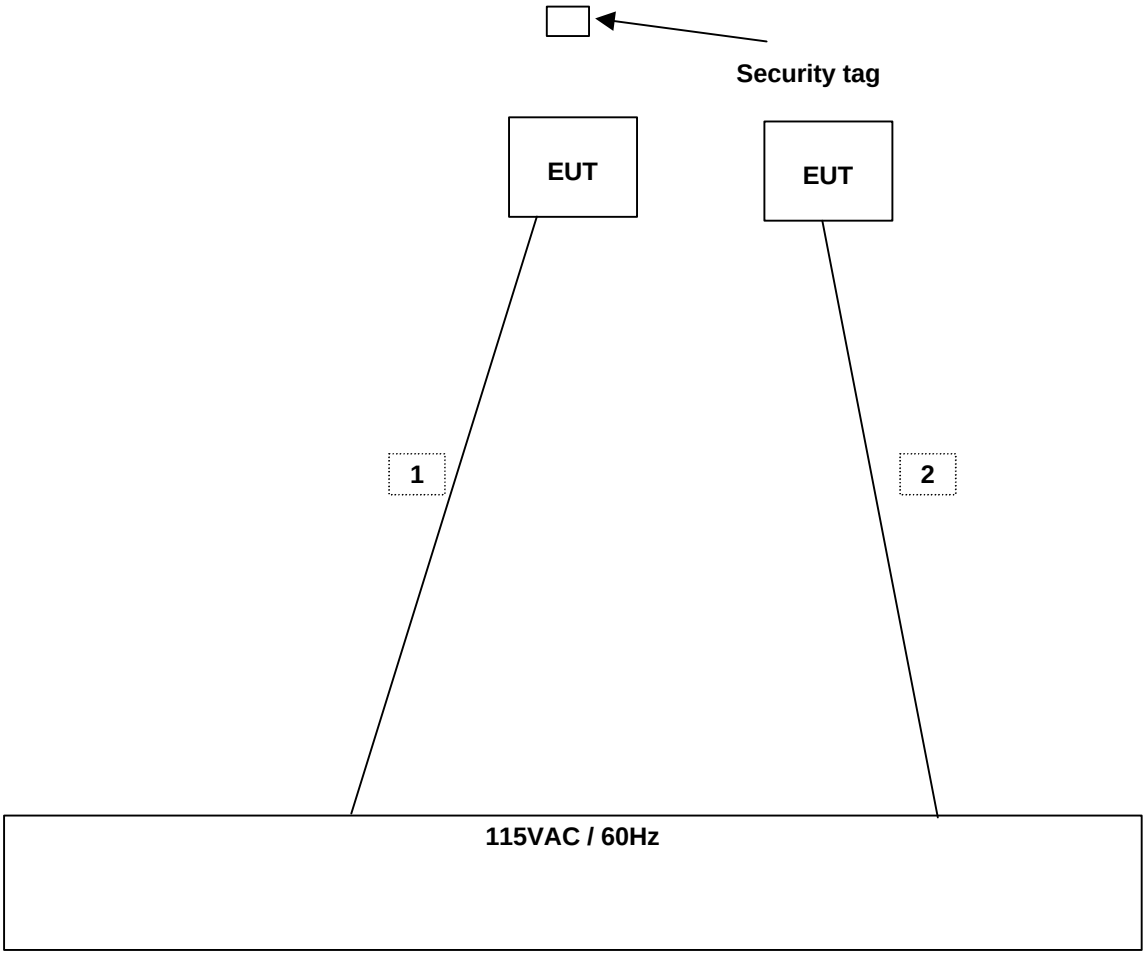
Test Peripherals

No support equipment was used.

Test Configuration Diagram
Mono-Guard



Test Configuration Diagram
Multi-Guard



I/O Cable Configuration
Mono-Guard

TEST I / O CABLES								
Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	AC	1	US 115V	Un-shielded	2m	No	Yes	N/A

I/O Cable Configuration
Multi-Guard

TEST I / O CABLES								
Cable No	I/O Port	# of I/O Port	Connector Type	Type of Cable	Cable Length	Data Traffic	Bundled	Remark
1	AC	1	US 115V	Un-shielded	2m	No	Yes	N/A
2	AC	1	US 115V	Un-shielded	2m	No	Yes	N/A

4.1 Radiated Emission Test Procedures

The EUT and all other support equipment were placed on a wooden table 80 cm above the ground screen. The antenna to EUT distance was 10 meters During the test, the table was rotated 360 degrees to maximize emissions and the antenna was positioned from 1 to 4 meters above the ground screen to further maximize emissions. Measurements were made with the antenna polarized in both the vertical and the horizontal positions.

The EUT test configuration was according to Section 8 of ANSI C63.4/1992.

The following procedure was used to make the measurements: The frequency range of interest was monitored at a fixed antenna height and EUT azimuth. The Frequency span was set small enough to easily differentiate between broadcast stations, intermittent ambient signals and EUT emissions. The EUT was rotated through 360 degrees to maximize emissions received. During the rotation if emission increased by more than 1 dB, or if another emission appeared that was greater by 1 dB, the EUT was returned to the azimuth where the maximum occurred, and additional cable manipulation was performed to further maximize received emissions.

The antenna was moved up and down to further maximize the suspected highest amplitude signal. If the emission increased by 1 dB or more, or if another emission appeared that was greater by 1dB or more, the antenna was returned to the height where maximum signal was observed, and, cables were manipulated to produce highest emissions, noting frequency and amplitude.

4.1.1 Instrument Setting

Frequency Range	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
30 - 1000 MHz	EMI Receiver	Quasi-Peak	120kHz	N/A
30 – 1000 MHz	Spectrum Analyzer	Peak	100kHz	100kHz
Above 1000 MHz	Spectrum Analyzer	Peak	1 MHz	1 MHz

4.1.2 Measurement Instrument Configuration

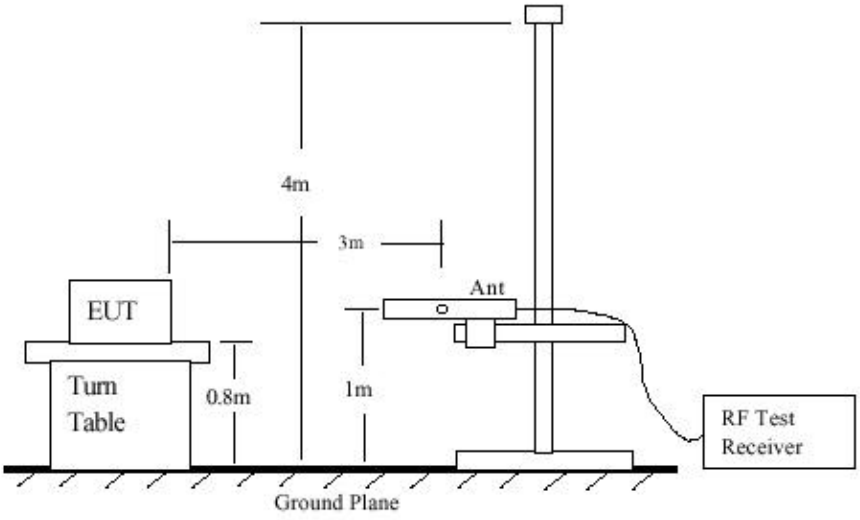


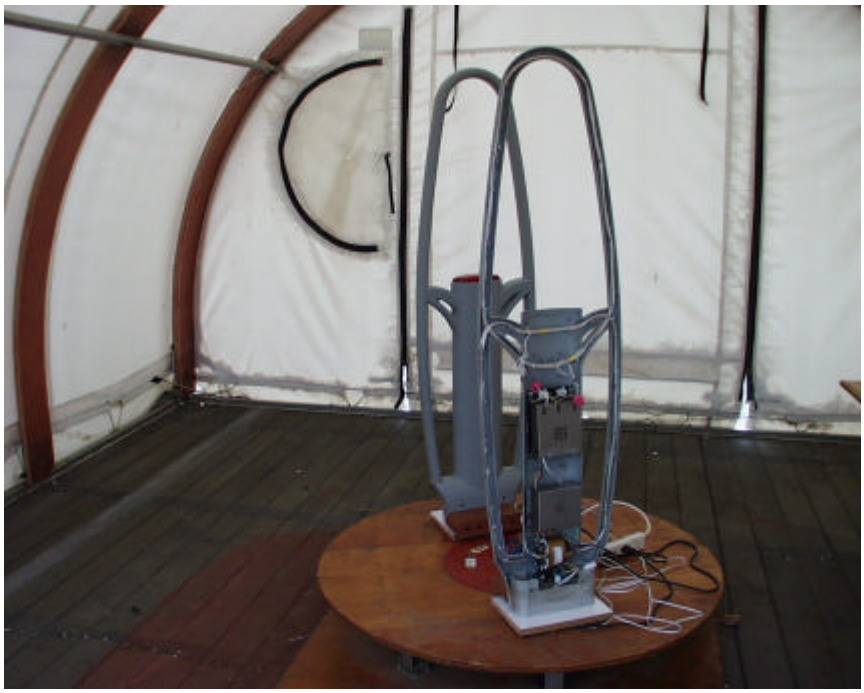
Fig 1: Radiated Emission Measurement 30 to 1000 MHz

4.1.3 Measurement Equipment Used

TEST EQUIPMENTS LIST				
Name of Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Due Date**
Spectrum Analyzer	HP100Hz - 22GHz	8566B	3014A06685	6/28/02
Spectrum Display	HP	85662A	3026A19146	6/28/02
Quasi-Peak Detector	HP9K - 1GHz	85650A	3145A01654	6/28/02
Pre-Amplifier,25 dB	HP0.1 - 1300MHz	8447D (P5)	2944A06550	8/10/02
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1214	8/2/02
Antenna, LP	EMCO200 - 2000MHz	3146	9107-3163	8/2/02
Line Filter	Lindgren 10k - 10GHz	LMF-3489	497	N.C.R.
LISN	Fisher Cus. Comm.	LISN-50/250-25-2	2023	8/2/02
EMI Test Receiver	Rohde & Schwarz	ESHS 20	827129/006	4/2/02
Active Loop Antenna, (10K - 30MHz)	EMCO	6502	9202-2722	2/18/02

4.1.4 Radiated Emission Test Setup Photos

Mono-Guard Radiated Emission Test Setup



Multi-Guard Radiated Emission Test Setup

4.1.5 Radiated Emission Test Result

Mono-Guard

COMPLIANCE Certification Services

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 01U1051-1
Report #: 011212c
Date& Time: 12/12/01 10:06 AM
Test Engr: HLV

Company: WG Security Products, Inc.
EUT Description: 58kHz Electronic Article Surveillance Device
Test Configuration : Eut/Tag
Type of Test: FCC 15.209
Mode of Operation: TX

<< Main Sheet

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
37.00	52.20	13.13	0.82	27.55	38.60	40.00	-1.40	3mV	90.00	1.00	QP
45.30	51.50	12.93	0.88	27.52	37.79	40.00	-2.21	3mV	90.00	1.00	QP
222.00	40.15	11.77	2.02	26.78	35.71	46.00	-10.29	3mV	90.00	1.00	P
72.00	54.70	6.61	1.02	27.43	34.91	40.00	-5.09	3mV	90.00	1.00	P
118.00	48.30	10.86	1.38	27.27	33.27	43.50	-10.23	3mV	90.00	1.00	P
137.00	44.50	14.17	1.54	27.17	33.04	43.50	-10.46	3mV	90.00	1.00	P
6 Worst Data											

Multi-Guard

COMPLIANCE Certification Services
FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

561F MONTEREY ROAD, SAN JOSE, CA 95037-9001
PHONE: (408) 463-0885 FAX: (408) 463-0888

Project #: 02U1051-1
Report #: 020417C01
Date& Time: 04/17/02 1:45 PM
Test Engr: Frank Ibrahim

Company: WG Security Products
EUT Description: 58kHz Electronic Article Surveillance (Multi Guard)
Test Configuration : EUT, Tag
Type of Test: FCC 15.209
Mode of Operation: TX/RX

(○) A-Site (○) B-Site (●) C-Site (○) F-Site [6 Worst Data] [Descending]

Freq. (MHz)	Reading (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit EN_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
37.00	45.00	12.92	0.82	27.55	31.20	40.00	-8.80	3mV	0.00	1.00	QP
37.00	51.90	12.92	0.82	27.55	38.10	40.00	-1.90	3mV	0.00	1.00	P
45.30	50.40	12.07	0.88	27.52	35.83	40.00	-4.17	3mV	0.00	1.00	P
45.30	45.30	12.07	0.88	27.52	30.73	40.00	-9.27	3mV	0.00	1.00	QP
72.00	64.90	6.13	1.02	27.43	44.63	40.00	4.63	3mV	0.00	1.00	P
72.00	55.20	6.13	1.02	27.43	34.93	40.00	-5.07	3mV	0.00	1.00	QP

Total data #: 6
V.2c

4.2 Conducted Emission Test Procedures

The EUT was setup and located so that the distance between the boundary of the EUT and the closest surface to the LISN was 0.8m or more.

EUT test configuration was according to Section 7 of ANSI C63.4/1992.

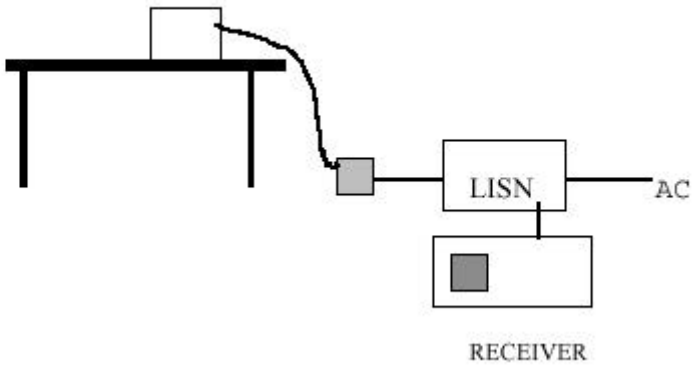
Conducted disturbance was measured between the phase lead and the ground, and between the neutral lead and the ground. The frequency 0.450 - 30 MHz was investigated.

The EMI receiver was set to PEAK detector setting, and swept continuously over the frequency range to be investigated. The resolution bandwidth was set to 9kHz minimum. The EMI receiver input cable was connected to LINE 1 RF measurement connection on the LISN. A 50ohm terminator was connected to the unused RF port on the LISN. For each mode of EUT operation, emissions readings were maximized by manipulating cable and wire positions. The configuration for each EUT power cord which produced emissions closest to the limit was recorded. The same procedure was repeated for LINE 2 of each EUT power cord.

4.2.1 Instrument Settings

Frequency Range	Peak	Quasi-Peak	Average
0.45 – 30 MHz	10 kHz	9 kHz	10 kHz

4.2.2 Measurement Instrument Configuration

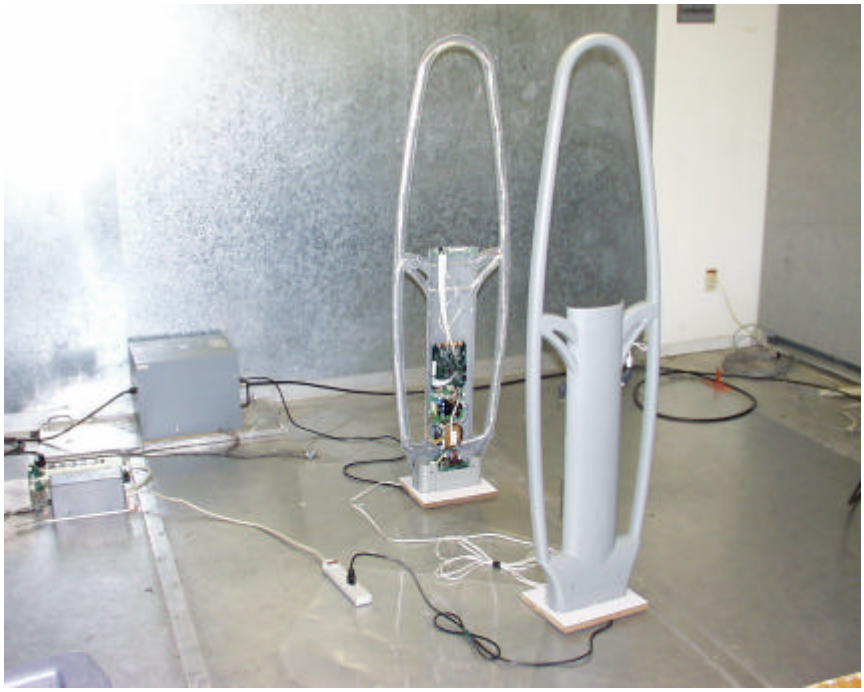


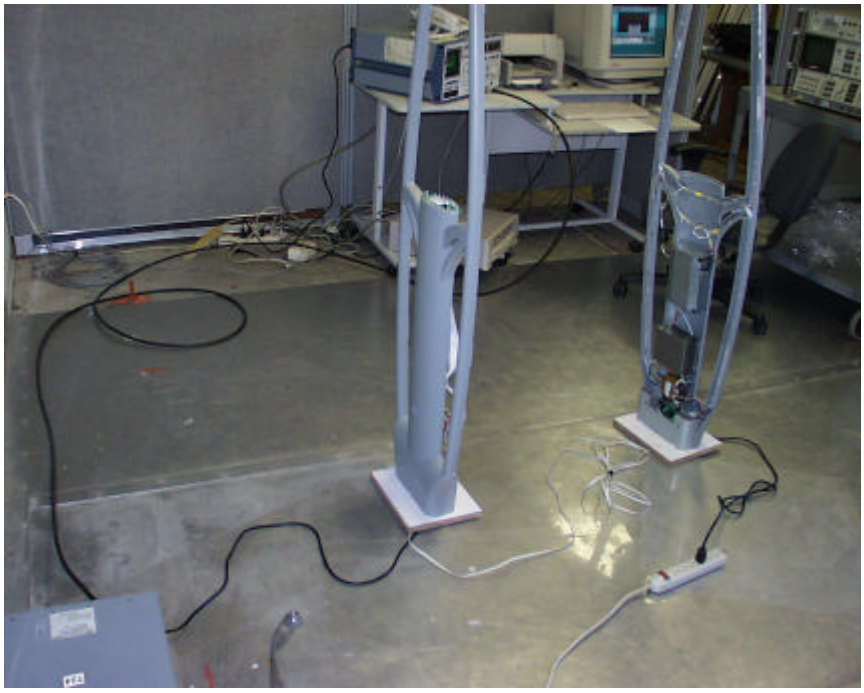
4.2.3 Measurement Equipment Used

TEST EQUIPMENTS LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Spectrum Analyzer	HP100Hz - 22GHz	8566B	3014A06685	6/28/02
Spectrum Display	HP	85662A	3026A19146	6/28/02
Quasi-Peak Detector	HP9K - 1GHz	85650A	3145A01654	6/28/02
Pre-Amplifier,25 dB	HP0.1 - 1300MHz	8447D (P5)	2944A06550	8/10/02
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1214	8/2/02
Antenna, LP	EMCO200 - 2000MHz	3146	9107-3163	8/2/02
Line Filter	Lindgren 10k - 10GHz	LMF-3489	497	N.C.R.
LISN	Fisher Cus. Comm.	LISN-50/250-25-2	2023	8/2/02
EMI Test Receiver	Rohde & Schwarz	ESHS 20	827129/006	4/2/02
Active Loop Antenna, (10K - 30MHz)	EMCO	6502	9202-2722	2/18/02

4.2.4 Conducted Emission Test Setup Photos

Mono-Guard Conducted Emission Setup





Multi-Guard Conducted Emission Setup

4.2.5 Conducted Emission Test Result

Mono-Guard

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	FCC_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.91	41.70	22.60	--	0.00	48.00	--	-25.40	--	L1
2.80	44.60	23.90	--	0.00	48.00	--	-24.10	--	L1
12.32	59.70	37.60	--	0.00	48.00	--	-10.40	--	L1
0.52	49.54	26.69	--	0.00	48.00	--	-21.31	--	L2
12.91	61.06	23.00	--	0.00	48.00	--	-25.00	--	L2
17.97	59.97	38.30	--	0.00	48.00	--	-9.70	--	L2
6 Worst Data									

Multi-Guard (PS1=Transmitter and PS2=Receiver)

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
0.15	49.23	--	--	0.00	65.97	55.97	-16.74	-6.74	L1
11.26	34.62	--	--	0.00	60.00	50.00	-25.38	-15.38	L1
20.49	39.36	--	--	0.00	60.00	50.00	-20.64	-10.64	L1
0.15	47.16	--	--	0.00	65.97	55.97	-18.81	-8.81	L2
0.20	34.48	--	--	0.00	64.51	54.51	-30.03	-20.03	L2
19.53	36.75	--	--	0.00	60.00	50.00	-23.25	-13.25	L2
6 Worst Data									

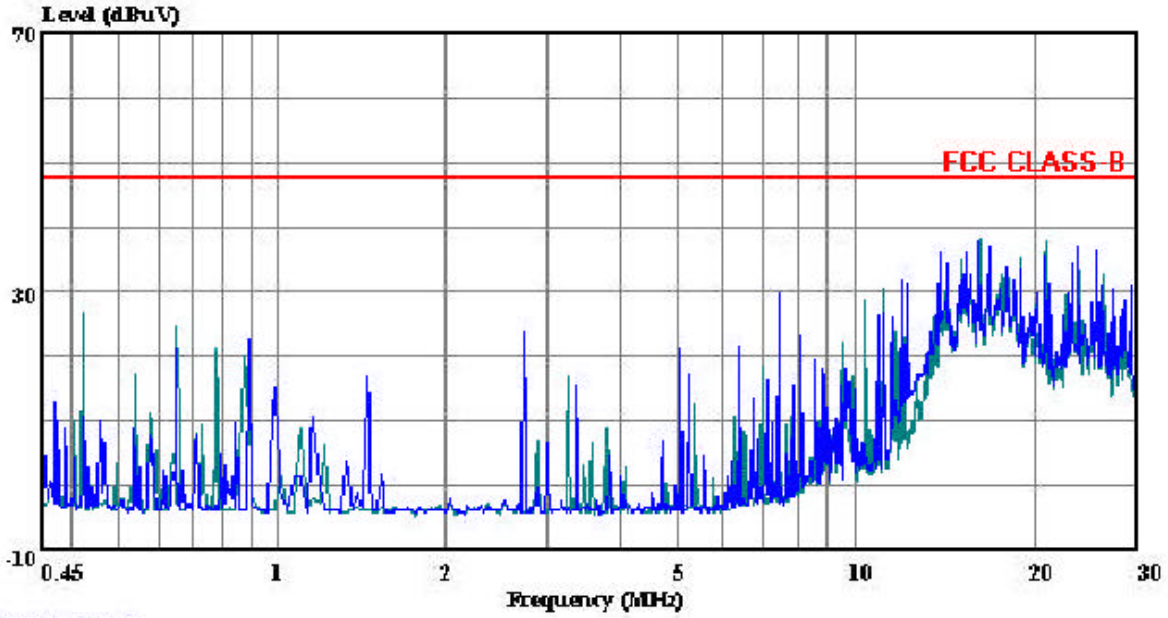
PS1

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq.	Reading			Closs	Limit	EN_B	Margin		Remark
(MHz)	PK (dBuV)	QP (dBuV)	AV (dBuV)	(dB)	QP	AV	QP (dB)	AV (dB)	L1 / L2
7.25	30.72	--	--	0.00	60.00	50.00	-29.28	-19.28	L1
11.38	52.30	--	35.50	0.00	60.00	50.00	-7.70	-14.50	L1
20.49	41.39	--	--	0.00	60.00	50.00	-18.61	-8.61	L1
6.56	27.38	--	--	0.00	60.00	50.00	-32.62	-22.62	L2
11.38	52.30	--	35.50	0.00	60.00	50.00	-7.70	-14.50	L2
20.06	40.91	--	--	0.00	60.00	50.00	-19.09	-9.09	L2
6 Worst Data									

PS2

COMPLIANCE Engineering Services, Inc.
561F Monterey Road
Morgan Hill, CA 95037, U.S.A.
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 16 File#: 115.emi Date: 02-15-2002 Time: 17:09:51



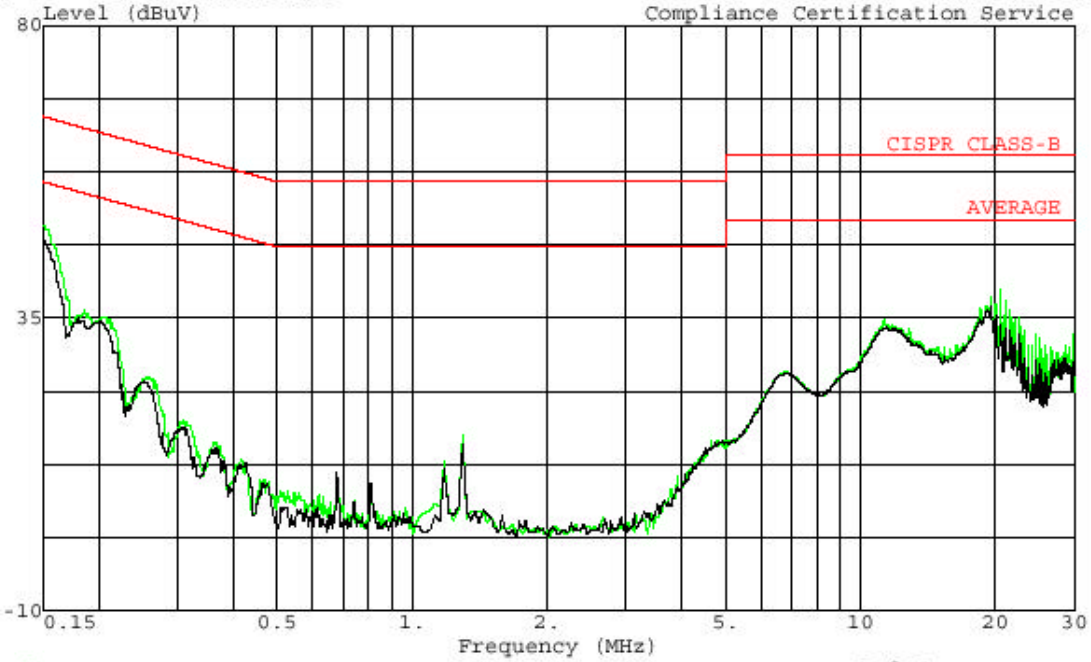
(Audix ATC)

Trace: 13 Ref Trace:

Project# : 02U1162-1
Company : WG Security Products, Inc.
EUT Description : 58KHz Electronic Article Surveillance Sy
Model Number : MONO-GUARD
Test Configurtion: EUT only
Test Target : FCC Class B
Mode of Operation: TX ON, Normal
: QP: L1(blue), L2(green)
: 115Vac, 60Hz

COMPLIANCE Engineering Services, Inc.
561F Monterey Road,
San Jose, CA 95037 USA
Tel: (408) 463-0885
Fax: (408) 463-0888

Data#: 7 File#: LC0419.EMI Date: 04-19-2002 Time: 10:14:09



Trace: 3 Ref Trace:
Project # : 01U1051-1
Test Technician: Frank Ibrahim
Company : WG Security Products, Inc.
EUT : 58kHz Electronic Article Surveillance
: (Multi Guard)
Test Config : EUT (Multi Guard)
Type of Test : EN 55022 CLASS B
Mode of Op. : TX/RX
: PEAK: L1(BLACK), L2(GREEN)
: PS1, 115VAC, 60Hz

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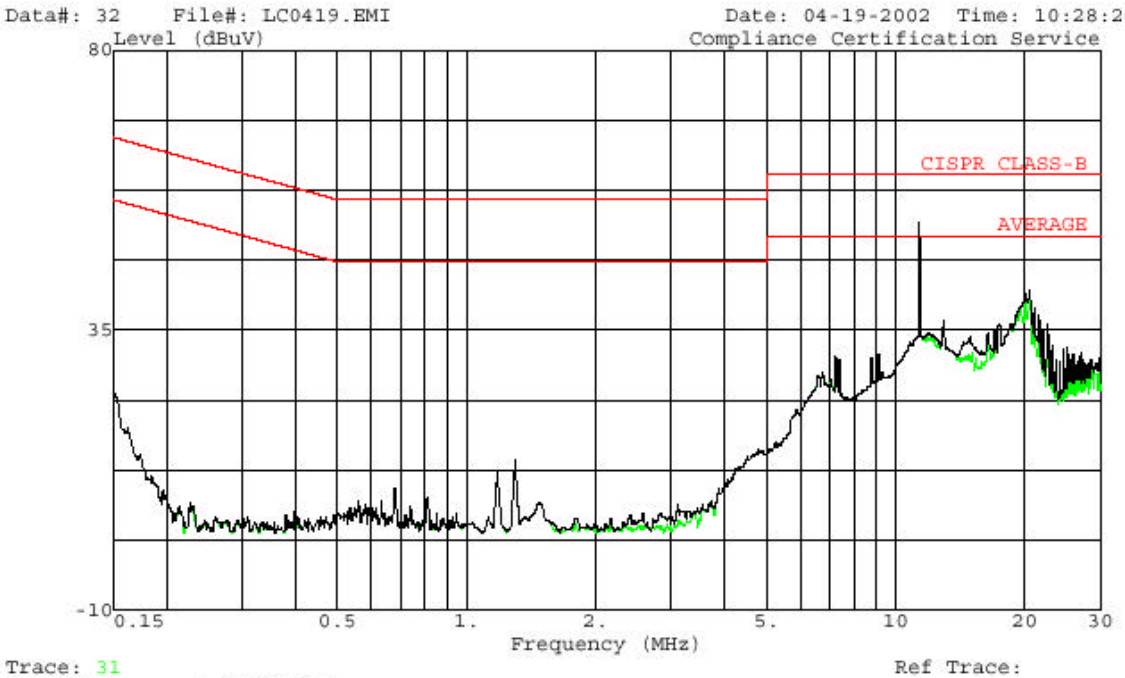
Tel: (408) 463-0885
Fax: (408) 463-0888



Trace: 31 Ref Trace:
Project # : 01U1051-1
Test Technician: Frank Ibrahim
Company : WG Security Products, Inc.
EUT : 58kHz Electronic Article Surveillance
: (Multi Guard)
Test Config : EUT (Multi Guard)
Type of Test : EN 55022 CLASS B
Mode of Op. : TX/RX
: PEAK: L1(BLACK), L2(GREEN)
: PS2, 115VAC, 60Hz

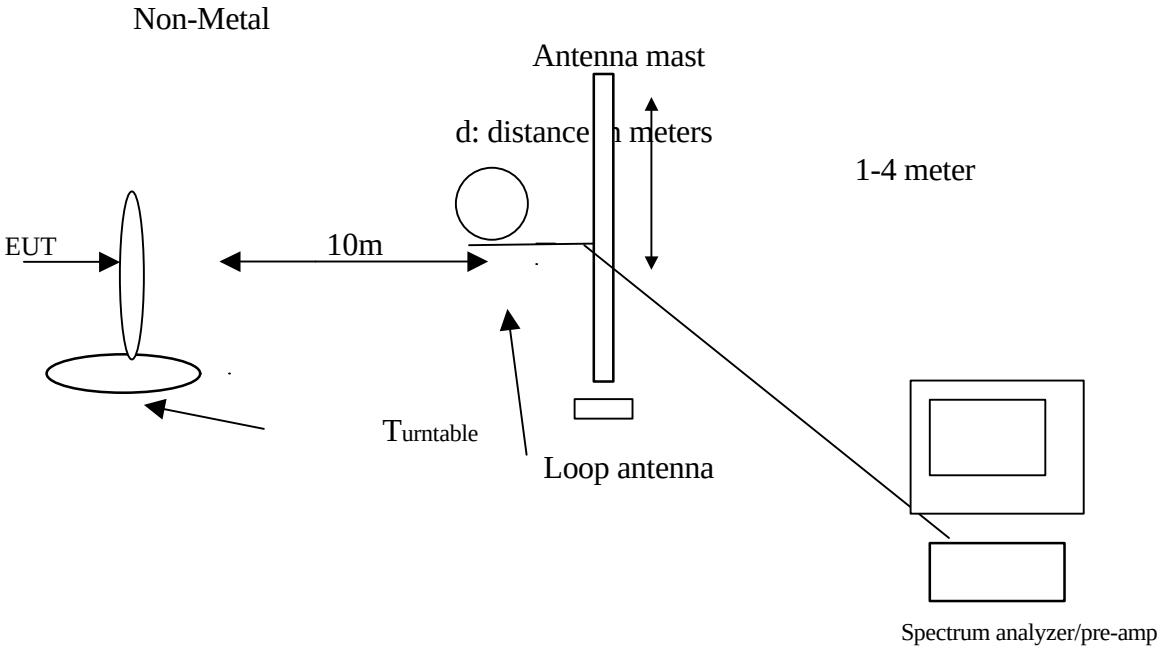
4.3 FCC Testing below 30MHz.

4.3.1 Instrument Settings

Frequency Range	Instrument	Detector Function	Resolution Bandwidth	Video Bandwidth
9kHz - 150 kHz	EMI Receiver	Quasi-Peak	3kHz	3kHz
.150MHz –30 MHz	EMI Receiver	Quasi-Peak	100kHz	100kHz
9kHz - 150 kHz	Spectrum Analyzer	Peak	100Hz	100Hz
.150MHz– 30 MHz	Spectrum Analyzer	Peak	9kHz	9kHz

4.3.2 Measurement Instrument Configuration

Radiated BELOW 30MHz



4.3.3 Measurement Equipment Used

TEST EQUIPMENTS LIST				
Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
Spectrum Analyzer	HP100Hz - 22GHz	8566B	3014A06685	6/28/02
Spectrum Display	HP	85662A	3026A19146	6/28/02
Quasi-Peak Detector	HP9K - 1GHz	85650A	3145A01654	6/28/02
Pre-Amplifier,25 dB	HP0.1 - 1300MHz	8447D (P5)	2944A06550	8/10/02
Antenna, Bicon	Eaton30 - 200MHz	94455-1	1214	8/2/02
Antenna, LP	EMCO200 - 2000MHz	3146	9107-3163	8/2/02
Line Filter	Lindgren 10k - 10GHz	LMF-3489	497	N.C.R.
LISN	Fisher Cus. Comm.	LISN-50/250-25-2	2023	8/2/02
EMI Test Receiver	Rohde & Schwarz	ESHS 20	827129/006	4/2/02
Active Loop Antenna, (10K - 30MHz)	EMCO	6502	9202-2722	2/18/02

4.3.4 Below 30MHz Emission Test Setup photos
Mono-Guard

4.3.5 Below 30MHz Emission Test Results
Mono-Guard

WG Security Products ,INC.
58kHz Article Surveillance System
Test to: FCC-15.209
Test distance: 10 meter measurement
Model Name: Mono-Guard

Hue Ly Vang
Date: 12/8/01
Site C

Frequency	QP	AF	CL	D.C.	Corrected Reading	Limit	Margin
(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/m)	(dB)
0.058	46.5	9.5	0.1	-59	-2.9	32.34	-35.24
0.117	38	8.7	0.1	-59	12.2	26.26	-38.46
0.174	36	8.7	0.1	-59	-14.2	22.79	-36.99
0.29	37	8.7	0.1	-59	-13.2	18.36	-31.56
0.35	26	8.7	0.1	-59	-24.2	16.72	-40.92
0.405	35.4	8.7	0.2	-59	-14.7	15.46	-30.16
0.522	32.2	8.7	0.2	-19	22.1	33.25	-11.15
0.638	22.2	8.7	0.2	-19	12.1	31.51	-19.41
0.985	22.6	8.7	0.3	-19	12.6	27.73	-15.13
1.395	23	9	0.3	-19	13.3	24.71	-11.41

Q.P. = Quasi Peak Readings
A.F. = Antenna factor
C.L. = Cable Loss
* Distance Correction factor below 30MHz = 40*log (new test distance/original limit distance)
40*log (10/300)= -59
40*log (10/30)= -19
* Worst Case readings is when EUT is facing the Antenna in the Horizontal position.

Multi-Guard

WG Security Products ,INC.
58kHz Article Surveillance System
Test to: FCC-15.209
Test distance: 10 meter measurement
Model Name: Multi-Guard

Frank Ibrahim
Date: 4/17/02
Site C

Frequency (MHz)	QP (dBuV)	AF (dB)	CL (dB)	D.C. (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)
0.058	76.7	9.5	0.1	-59	27.3	32.34	-5.04
1.326	38	9	0.1	-59	11.9	26.26	-14.36

Q.P. = Quasi Peak Readings
A.F. = Antenna factor
C.L. = Cable Loss
* Distance Correction factor below 30MHz = 40*log (new test distance/original limit distance)
40*log (10/300)= -59
40*log (10/30)= -19
* Worst Case readings is when EUT is facing the Antenna in the Horizontal position.